



State of Utah

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DEPARTMENT OF TRANSPORTATION

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July 7, 2016

VIA ELECTRONIC DELIVERY

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

SUBJECT: ET Docket No. 13-49 - *Revision of Part 15 of the Commission's Rules to Permit
Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz
Band*

To the Commission:

The Utah Department of Transportation hereby provides comments in response to the Commission's invitation to "update and refresh the record" on potential sharing solutions between proposed Unlicensed National Information Infrastructure (U-NII) devices and Dedicated Short Range Communications (DSRC) operations in the 5.850-5.925 GHz band in the above-captioned proceeding.¹ These comments reiterate and extend the comments offered by our Department in 2013.² As one of many state Departments of Transportation that are actively deploying DSRC infrastructure, we remain opposed to any sharing of this spectrum unless and until definitive field testing can demonstrate that such sharing will not compromise transportation safety.

DSRC applications for Vehicle-to-Vehicle ("V2V") and Vehicle-to-Infrastructure ("V2I") wireless communications promise unprecedented and transformative safety benefits for the traveling public. The USDOT estimates that V2V and V2I technology could mitigate over 80 percent of vehicle crashes that occur today involving non-impaired drivers, literally saving tens of thousands of lives every year. The DSRC spectrum is key to achieving that life-saving goal, clearly the "highest and best use" of spectrum resources.

¹ See *Federal Register*, Vol 81, No. 109 'Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band', ET Docket No. 13-49, FCC 16-68, p.36501, June 7, 2016 ("*Federal Register Notice*").

² See Letter from John R. Njord, P.E., Executive Director Utah Department of Transportation to Mr. Julius Genacowshi, Chairman, Federal Communications Commission, on Proposed Rulemaking Docket No. 13-49, March 28, 2013.

As you are aware, the National Telecommunications & Information Administration (NTIA) issued a report in January 2013³ evaluating the ramifications of spectrum sharing in the DSRC range. The report identified “a number of risk elements due to the likelihood of harmful interference from large numbers of U-NII devices to protected federal systems” and concluded that “further analysis will be required to determine whether and how the identified risk factors can be mitigated.” We urge the FCC and other involved agencies to continue to pursue this analysis diligently, using actual U-NII devices in field settings where large numbers of fixed and mobile DSRC units are in operation. One such field setting is near Ann Arbor, Michigan, where the USDOT and the Michigan DOT operate a large deployment of DSRC units. We have serious concerns about any “detect and avoid” sharing techniques and believe that any field testing which does not involve multiple fixed and hundreds of moving DSRC units will lead to erroneous and incomplete test results.

The Federal Register Notice seeks comments on “what DSRC-related use cases should be expected”, the “projected timeframe” for DSRC deployments, and how “re-channelization” (one of the proposed spectrum sharing techniques) would impact hardware and data processing. The Utah Department of Transportation is currently deploying DSRC devices in the Salt Lake valley in an application intended to improve bus schedule reliability. We currently have three DSRC devices installed at fixed intersections, and plan to deploy an additional 28 devices by the end of 2016. In addition, this phase of the project will include 10 to 15 mobile DSRC devices mounted in transit buses. A second phase of this project in a different location could double these numbers in late 2017. The specific application being deployed is known as Multi-Modal Intelligent Traffic Signal System (MMITSS), a version of which is also deployed near Phoenix, Arizona, and in San Jose, California. This MMITSS system transmits the Basic Safety Message (BSM), the Signal Phase and Timing (SPaT) message, and the MAP message over channel 172. It also transmits a Signal Request Message (SRM), a Signal Status Message (SSM) and, in the future, security credentials, over channels 178 and 182. We offer three key messages based on this system architecture: 1) In addition to the BSM, there are several other critical messages which are transmitted by DSRC devices. Most of these are standardized messages, developed through years of collaboration between state agencies, federal agencies, vehicle manufacturers, and other private sector vendors. 2) Multiple channels are needed to communicate the various messages that are important to specific applications. For instance, reporting slick road surfaces (ice and other conditions) or to on-coming vehicles will require a Basic Infrastructure Message (BIM) in addition to those messages listed above. This message, and others like it, is under development. 3) Any re-channelization of the DSRC communication would cause us to lose several years of

³ See *Evaluation of the 5350-5470MHZ and 5850-5925 MHZ Bands Pursuant to Section 6406(b) of the Middle Class Tax Relief and Job Creation Act of 2012*, U.S. Department of Commerce, January 2013.

time and resources to modify hardware, redefine standards, and modify MMITSS and other software applications, wasting limited public funds.

The Federal Register Notice seeks clarification on whether there are “meaningful distinctions between DSRC applications that are safety related and those that are not”. The USDOT’s Connected Vehicle Reference Implementation Architecture (CVRIA)⁴ defines almost ninety V2I and V2V applications. Some of these are clearly safety related, and some are not, but many fit in the continuous spectrum between the safety and non-safety applications, filling both roles. Along this spectrum, it is difficult to classify individual applications as safety or non-safety. Further, most deployments will involve both safety and non-safety applications; the various applications are synergistic. For instance, the MMITSS application that we are deploying is a transit schedule enhancement application, not a safety application. However, we are using this deployment as a backbone-building deployment; other applications will be added to this network of hardware once this application is functional and some of those will be safety applications. Further, the messages being used within MMITSS, the BSM, SPaT, MAP and SSM packets of data, are critical message sets for many safety related applications.

The Utah Department of Transportation has been involved in planning efforts for connected vehicle systems for over twelve years. We are involved with other states through the American Association of State Highway and Transportation Officials (AASHTO), the Connected Vehicle Pooled Fund Study (CV PFS), and the V2I Deployment Coalition (V2I DC). Momentum has been building toward DSRC deployment for a number of years. In addition to our new deployment in Utah, there are deployments in Washington, Arizona, California, Pennsylvania, Minnesota, Michigan, New York, Virginia, and Florida. In the next 18 months, there will be additional deployments in Colorado, Delaware, New York City, Tampa, Florida, and along I-80 in Wyoming. The V2I DC and AASHTO are actively working on a plan to encourage deployments across the country, which will yield further DSRC installations in the next three years. Any modification to the channel plan of the DSRC spectrum will negatively impact all of these deployments, and defer life-saving systems by several years, not to mention the un-told costs which will be incurred by such a change.

DSRC meets all of the current and future needs of the connected vehicle program, including the technical requirements needed to enable the challenging safety and mobility applications envisioned. It is capable of reliable, high-speed data communications between fast-moving vehicles and road-side infrastructure in milliseconds, as needed for crash avoidance. Other communications technologies are not capable of providing this low latency response. If the FCC allows shared use of this spectrum, without clear and definitive demonstration that such

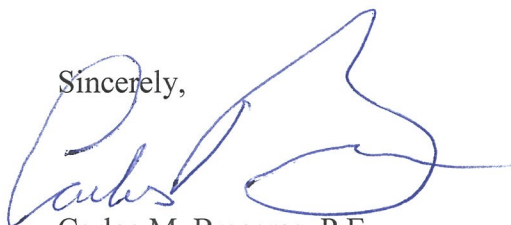
⁴ See <http://www.iteris.com/cvria/html/applications/applications.html>, accessed July 4, 2016 (“CVRIA”).

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sharing will not interfere with these transportation uses, the critical, life-saving advantages of DSRC could be compromised and degraded.

The Utah Department of Transportation is opposed to any proposal to share the 5.9 GHz spectrum outside of the intent of the original 1999 rulemaking, unless and until definitive and extensive field testing can demonstrate that such sharing will not compromise transportation safety. We urge the FCC to move cautiously and preserve the current usage of the DSRC band solely for the purpose of transportation.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Carlos M. Braceras', with a long horizontal flourish extending to the right.

Carlos M. Braceras, P.E.
Executive Director

CMB/BL/dej

Cc: Bud Wright, AASHTO
Regina Hopper, ITSA